Claims

1. A ~~method for partially regenerating~~ methanol to olefin ~~catalyst~~ process, comprising:

placing a deactivated methanol-to-olefin catalyst in a regenerator ~~to carry out a partial regeneration reaction to obtain a regenerated catalyst~~;

~~at least a portion of the regenerated catalyst has a coke amount of more than 1%.~~introducing a regeneration gas which consists of water steam into the regenerator to contact with the deactivated-methanol-to olefin-catalyst so as to gasify partial coke deposited on the deactivated-methanol-to-olefin-catalyst using the water steam, thereby obtaining a partially-regenerated-methanol-to-olefin-catalyst having a coke amount in a range from 3.89wt% to 6wt%;

introducing the partially-regenerated-methanol-to-olefin-catalyst into a fluidized bed to carry out the methanol to olefin reaction,

wherein the regeneration gas does not contain oxygen.

~~2. A method for partially regenerating methanol to olefin catalyst of claim 1, wherein the regenerated catalyst obtained by the partial regeneration reaction in the regenerator has a coke amount in a range of 1.7% to 6%.~~

~~3.~~2. ~~A method for partially regenerating~~ The methanol to olefin ~~catalyst~~ process of claim 1, wherein ~~the water steam is introduced into the regenerator in the partial regeneration reaction and~~ the contact time between the water steam and the deactivated methanol to olefin catalyst is in a range of 10 min to 40 min.

~~4.~~3. ~~A method for partially regenerating~~ The methanol to olefin ~~catalyst~~ process of claim ~~3~~ 2, wherein the water steam is introduced into the regenerator with a space velocity in a range of $4h^{-1}$ to $8h^{-1}$.

~~5.~~4. ~~A method for partially regenerating~~ The methanol to olefin ~~catalyst~~ process of claim 1, wherein the ~~partial regeneration reaction~~ obtaining the partially-regenerated-methanol-to-olefin-catalyst is carried out at a temperature in a range of 600 °C to 750 °C.~~;~~

~~preferably, the partial regeneration reaction is carried out at a temperature in a range of 710 °C to 750 °C.~~

5. The methanol to olefin process of claim 1, wherein the obtaining the partially-regenerated-methanol-to-olefin-catalyst is carried out at a temperature in a range of 710 °C to 750 °C.

6. ~~A method for partially regenerating~~ The methanol to olefin ~~catalyst~~ process of claim 1, wherein the deactivated methanol to olefin catalyst has a coke amount in a range of 7wt% to 12wt%.

7. ~~A method for partially regenerating~~ The methanol to olefin ~~catalyst~~ process of claim

1, wherein an inert gas is also introduced into the regenerator;
the inert gas is at least one selected from nitrogen, helium, argon, and ~~helium;~~ neon.
~~in the partial regeneration reaction, the volume fraction of oxygen in the gas phase of the regenerator is ≤1%.~~

8. ~~A method for partially regenerating~~ The methanol to olefin ~~catalyst~~ process of claim 1, wherein, ~~the methanol to olefin catalyst is subjected to a methanol to olefin reaction in a fluidized bed reactor, and the deactivated methanol to olefin catalyst is transported to a regenerator for a partial regeneration reaction to obtain a regenerated catalyst, which is an incompletely regenerated catalyst, the incompletely regenerated catalyst is recycled back to the fluidized bed reactor;~~

the partially regenerated methanol to olefin catalyst contains a silicoaluminophosphate molecular sieve; and

~~The~~ the partially regenerated methanol to olefin catalyst is a fluidized bed catalyst.

~~9. A methanol to olefin process, the methanol to olefin reaction is carried out in a fluidized bed with the use of a methanol to olefin catalyst, wherein at least a portion of the regenerated catalyst has a coke amount of more than 1%.~~

~~10. The methanol to olefin process of claim 9, wherein the regenerated catalyst is obtained by at least one of the methods for partially regenerating methanol to olefin catalyst according to any one of claims 1 to 7.~~